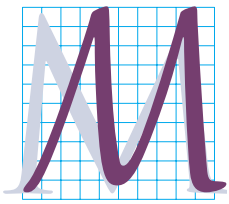
9

The LAB Advantage In Selections and Masking

The A and B channels may seem blurry and shapeless, but they're often the beginnings of the best masks. Objects that can't be resolved in any of the RGB channels are sometimes clearly defined in the A and/or B. Sometimes, the strange structure of the AB channels even lets us select the ambient light.



My luve, wrote Burns, is like a red, red rose, that's newly sprung in June. While much is to be said for the creative use of flowers in romance, and while redness is ordinarily a virtue, Figure 9.1A is too much of a good thing. It's not a rose any more—all detail has vanished in an out-of-tune melody sung unsweetly in a chorus of cacophonous oversaturation.

The rose appears here because, being so different from its background, it's probably the easiest object we'd ever have to select in a photograph. But before doing so, I'd like to fill in one hole in the first half of the book.

The objective of manipulating the A and B channels is usually to increase color variation, and to make certain colors brighter and purer. Basic AB curves accomplish this when we make them steeper by pivoting them counterclockwise around the center point.

On rare occasions, of which this is one, we need to do the reverse: to suppress colors. Steepening the AB curves wakes colors up; flattening puts them to sleep. To reduce the intensity of the colors, we pivot the curves clockwise. Figure 9.1A had so many reds that were outside of the CMYK gamut that they all closed up when the file was converted. Figure 9.1B, with a contrast boost in the L channel and the AB values reduced, is a better match to what can be printed. Now, back to our regularly scheduled program.

When we *select* an object, in Photoshop parlance, we allow ourselves to change it, whereas anything that isn't selected is locked. We can also make *partial selections,* which reduce the effect of any move, applying it less than on a fully selected area but more than on an area that isn't selected at all. We used exactly such a partial selection in correcting Figure 7.11A,

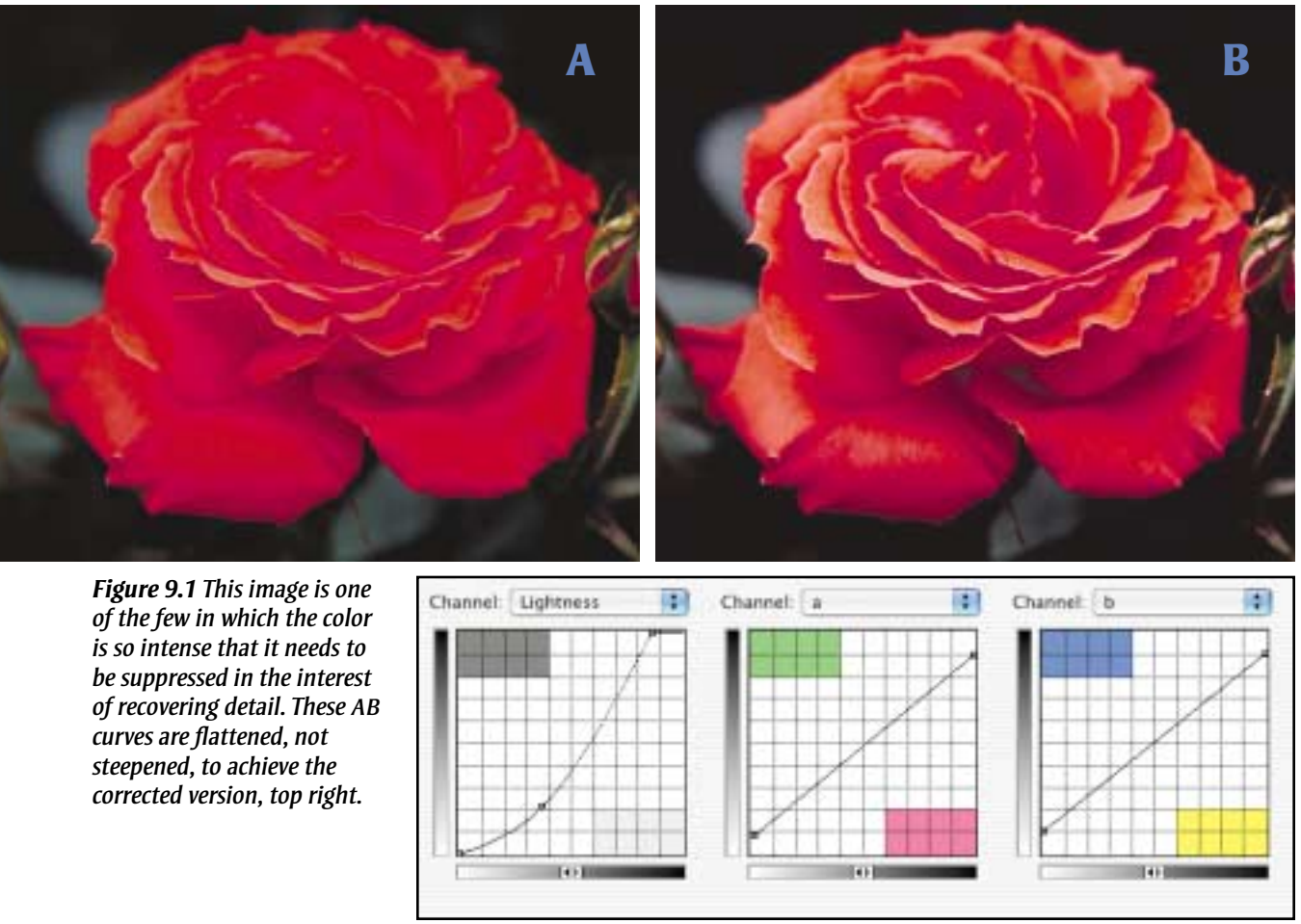


Figure 9.1 *This image is one of the few in which the color is so intense that it needs to be suppressed in the interest of recovering detail. These AB curves are flattened, not steepened, to achieve the corrected version, top right.*

which had a bad yellow cast in the highlight that grew weaker as the picture got darker. We loaded a luminosity mask that fully selected the light areas of the image but gradually lessened the selection elsewhere.

Selections become portable when we choose Select: Save Selection to store them either as a separate Photoshop document or as a nonprinting (alpha) channel in an existing one. The term *mask* applies to such portable selections. They can be edited like any other grayscale pictures and used over and over.

Too many people use selections as crutches. The better you get at image manipulation, the less you make them. Nevertheless, a selection is sometimes needed. To change Figure 9.1A into a yellow rose, or to import it into a different picture, or to ghost it out, or to tuck some type underneath it as part of a collage—all these moves would require selections. Even in color correction, we sometimes want them. You may think that the background in Figure 9.1B has gotten too dark. It wouldn't work to select the rose and correct only that; it would look as if the flower had been cut out and pasted back into the image. But a selection of the rose and a partial selection of the background, allowing it to get *somewhat* darker, might be agreeable.

Creation of accurate masks is one of the most difficult tasks for a serious retoucher, because not every object is as ridiculously easy to isolate as the rose in Figure 9.1A is. Knowledge of channel structure saves an amazing amount of time. The purpose of this

chapter is to show how the A and B channels are often the solution to otherwise intractable masking problems.

Note, please, that we are speaking only of mask/selection generation, not necessarily image manipulation in LAB. If you prefer to work on an RGB image, it's permissible to make a copy and convert it to LAB. A mask created there can be saved directly into any open RGB file that's the same size as the LAB one, as a direct copy would be.

Rose Is a Rose Is a Rose Is a Rose

First, a quick inventory of the many Photoshop methods of selecting. If we want to grab this rose, here are some of the options, listed more or less in order of complexity.

- Hit the rose with Photoshop's **magic wand** tool, which has been around since the beginning of time. It's primitive, but granting the huge difference between this rose and its background, the magic wand will not break a sweat in making this selection.
- Use the magic wand on a **single channel**, which often has greater contrast than the color composite. The red channel would be ideal, because its flower is extremely light, if not totally blank, and the background is dark. If you happen to be in CMYK, the same can be said of the cyan channel; and if you are in LAB, either the A or B will do.
- Click the rose after choosing the **Select: Color Range** command, to generate a selection of everything of a similar color.
- Trace the rose's edges with the **lasso** or the **pen tool.**
- Paint a selection by clicking into **Quick Mask** mode in the toolbox.
- Put the corrected version on a separate layer, and then use layer **Blending Options** to limit its effect to the desired areas.
- Try artificial intelligence to create the mask, using either Photoshop's **Filter: Extract** command or a **third-party masking plug-in.**
- Create a formal **mask**, usually by saving or blending existing channels and editing them. Sometimes the result will be loaded as a layer mask; sometimes merely as a selection by means of Select: Load Selection.

Every one of these methods works perfectly for this rose. Most of them are a total waste of time, since clicking with the magic wand would work. But as selections get more difficult, the options become more limited.

The yellow rose of Figure 9.2 is only slightly harder to select than the red one of Figure 9.1A. There's more color variation. Parts of the center are significantly darker than the edges, a complication from the point of view of the magic wand.

You should be able to tell which channels might have the beginnings of the mask without actually looking at them. In RGB, the blue channel must be extremely dark, because this rose is no more blue than it is a stalk of ragweed. The green is probably light enough to work with but the red will be even better, because the flower is more red than it is green; it will therefore be lighter in the red channel, Figure 9.2B.

In CMYK, the cyan would be best for the same reasons, and LAB is the easiest to guess. The flower is only slightly more magenta than it is green, but it's way more yellow than blue. Consequently it is well defined in the B, Figure 9.2C.

Making a mask is about finding edges. Both our prospective mask channels (the red and the B) have good ones—but the two have different characters. The red gets darker as the flower does. The B doesn't give a hoot about how light or dark an object is; it becomes darker where the flower is less yellow.

Having different strengths opens up some interesting possibilities. Retouchers often make difficult masks by blending channels in some esoteric mode, using a layered file, or using the Image: Apply Image or Image: Calculations commands. There is no rule against applying a channel from a document that's in

***Figure 9.2** This yellow rose's shape is well defined in the red channel of RGB (top right) and the B of LAB (bottom right).*

one colorspace to a channel of a file that lives in another.

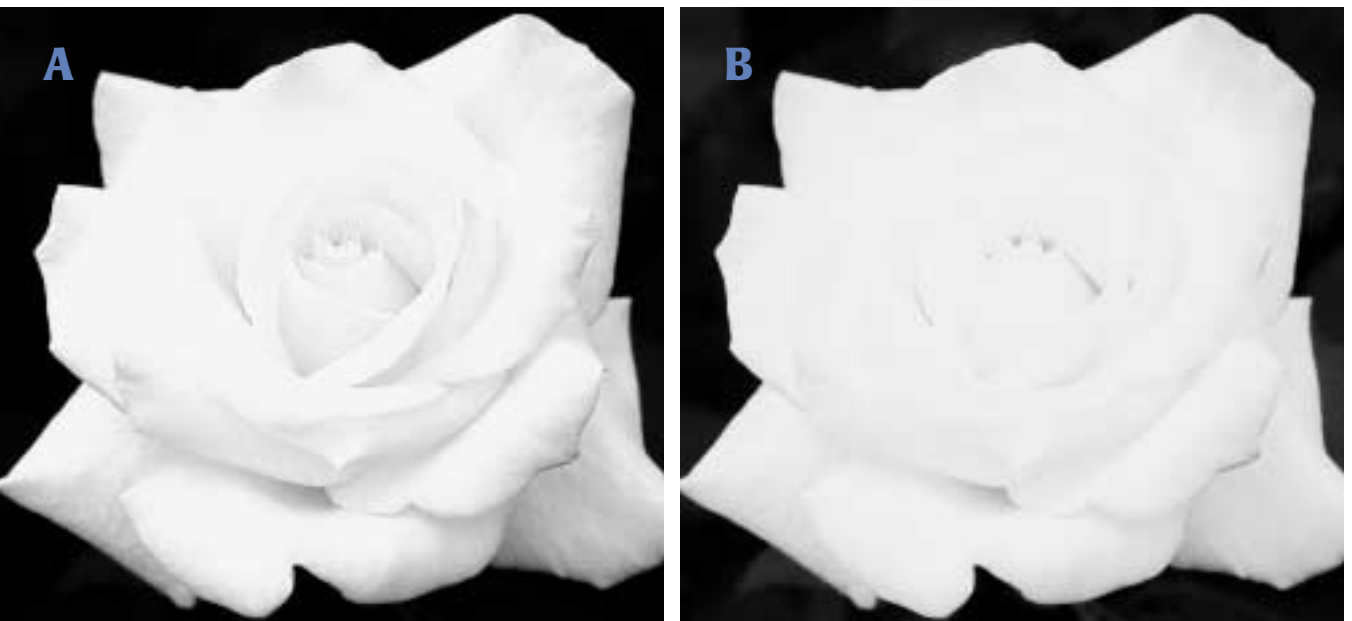
In Figure 9.3A, I applied the red channel to itself in Hard Light mode, a blending mode that we'll discuss later; the abbreviated explanation is that it lightens areas where both blending channels are light, and vice versa. In Figure 9.3B, I did better by using the same mode, but blending the B into the red.

Granted, an experienced retoucher will have no trouble creating a mask for this rose without LAB. But you can see where we're headed. RGB channels have trouble isolating a colored object as it gets darker. And there's no denying that Figure 9.3B is technically superior to Figure 9.3A.

Roses White and Roses Red

As the flowers get darker, the selection problems mount—in RGB. To see how selecting overly dark colors can become irksome, take a sniff of a second red rose. Figure 9.4 compares red and A channels. Anything red is positive in both A and B, but this flower has a

***Figure 9.3** Left, a prospective mask created by applying Figure 9.2B to itself in Hard Light mode. Right, when Figure 9.2C is applied to 9.2B in the same mode, the result is technically superior.*



stronger magenta than yellow component, so the A is a better choice to work with.

As redness fades into darkness, the red channel (Figure 9.4B) no longer differentiates the flower's lower left and right edges from the background. The A does, because the flower, though darker, is still magenta and the background is not. (To match the tonal variation of the red channel, contrast has been increased slightly in Figure 9.4C.)

Masks must be saved as grayscale documents, and when we save this A channel separately, we will increase its contrast even more with curves, making the flower full white and the background black. When that happens, there will be a suitable edge everywhere. Starting with the red instead would create needless work, and in our next example, it would create a *lot* of needless work.

There is no problem selecting out the white petunias in Figure 9.5A: they have well-defined edges in every channel. The red and purple flowers are a different story.

The red is again the lightest RGB channel, but not by much.The color is so subtle that, in Figure 9.5C, the purple flowers merge into the green leaves, which are equally dark.

Nor is the green a suitable option. The flowers are so utterly non-green that they're blacked out in Figure 9.5D. That differentiates them nicely from the leaves that were such a problem in Figure 9.5C. Unfortunately, the flowers now merge seamlessly with the darkest parts of the background.

The mask can certainly be made without an LAB copy of the file and without a painting tool, but it will take a while, and require a fair amount of knowledge. An expert would know how to use the Image: Calculations command to combine the red and green channels in such a way as to bring out the flowers. A multi-colorspace expert might instinctively realize that even though RGB channels almost always make better masks than CMYK ones do, this is the rare exception where the magenta of CMYK would be much better than the green of Figure 9.5D. If you know how to do these things, pat yourself on the back. But before going to the trouble of constructing a mask in such a convoluted fashion, ask yourself, what's the point? The mask is just sitting there, waiting to be extracted, in the A.

In Figure 9.5E, the flowers break easily away from both leaves and background. The A ignores darkness. It only knows that the leaves are green and the flowers magenta; that the background is neutral and the flowers aren't.

Figure 9.4 *The red channel, top right, no longer distinguishes parts of the flower's lower edges from the background. In the A channel, bottom right, the edge is distinct. (Contrast has been added to match the tonal variation of the red.)*

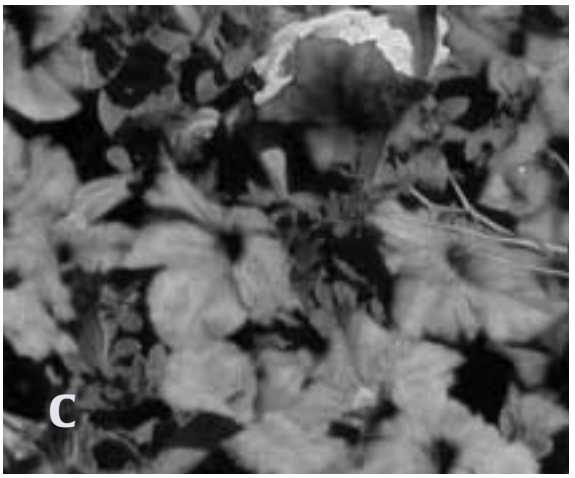


Figure 9.5 *As colors get darker, transitions retained in the A or B channel are often lost in their RGB counterparts. Right, top to bottom: a magnified color version, the red channel of RGB, the green of RGB, and the A of LAB.*

So Fair Art Thou, My Bonny Lass

The AB channels' blissful ignorance of darkness issues again provides the advantage in our final flower image. There's such a big difference between the bright flowers of Figure 9.6A and the background that it looks like the red channel might work as a mask right from the get-go.

That assumption, alas, is uprooted by the texture of the background stone. Finding nearly white flowers in the red channel would be great, if only there weren't umpty-nine million white spots behind them.

The A channel is not derailed by white or black spots in the middle of a gray area. They're all neutral, all values of 0^{A}, and they provide a perfectly smooth background to these heavily A–positive tulips.

Extremely fine detail often favors the use of an AB channel in masking even when, unlike that in Figure 9.6, the detail is nominally a different color than its surroundings. A photograph shot through fine netting (Figure 9.7) makes selections problematic.

Assume, then, that we wish to select the

Figure 9.6 *The mottling in the stone background poses a problem for a selection using the red channel, top right. But since the background is entirely neutral, it shows up as a pure gray in the A channel, bottom right.*

face, or the lips, or the blue background, or the hair. The likeliest RGB source for any would be the red. In LAB, for a change, it would be the B, because the face is positive, more yellow than blue, and the background sharply negative.

Almost any conceivable selection would *want* to include the netting, because its color would need to change along with whatever move we were making on what's behind it. In Figure 9.8A, the netting has picked up so much of the background color that the B channel hardly sees it. But in the red channel shown in Figure 9.8B, the netting can't be removed without some really stiff blurring. So once again, LAB is the best start for a mask.

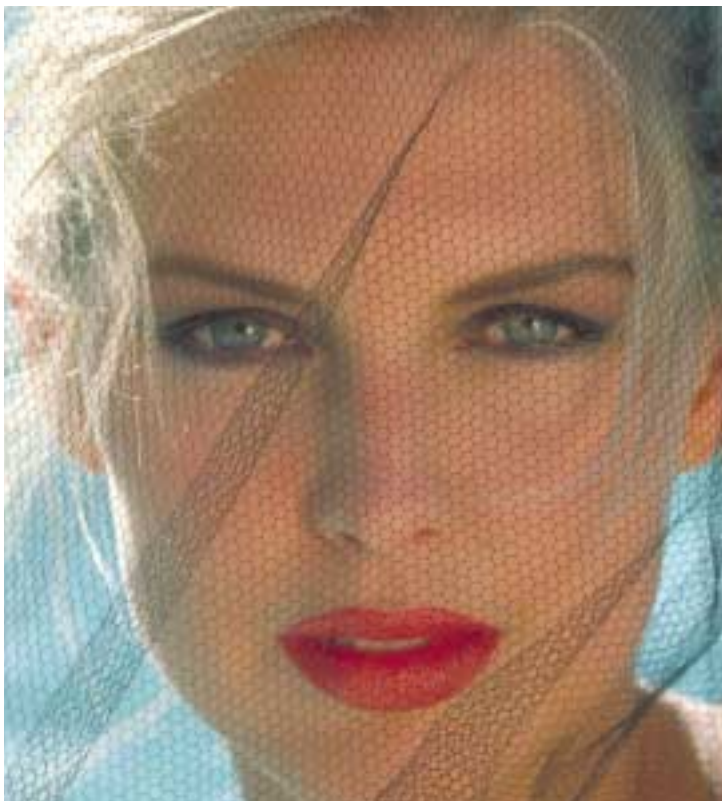


Figure 9.7 *The netting may be an obstacle to any attempt to select either the face or the blue background.*

A Rose by Any Other Name

Having established that LAB can make certain selections that are difficult to impossible elsewhere, let's look at where the principle can make a difference in practice.

Masks and soft-edged selections are often needed when there is something peculiar about the lighting, as there is in the airport scene of Figure 9.9. At first glance, it may remind you of an earlier exercise: Figure 7.6A, an overly

Figure 9.8 *The netting is less pronounced in the B of LAB (left) than in the red channel of RGB.*

dark shot of an outdoor wedding. The strategy then sounds good now: Shadow/Highlight to the L channel, followed by LAB curves to add contrast and more vivid colors.

That wedding picture, however, didn't have a big ugly backlit yellow sign dominating the image. If Figure 9.9 gets a general boost in all colors, that sign will ignite and take off faster than anything currently parked on the tarmac. So we must either exclude it from

Figure 9.9 *The overly dark image is dominated by the backlit signage. Any attempt to lighten and brighten the image may exaggerate the effect, as well as eliminate all detail in the signs.*

the overall correction or sharply limit what can happen to it.

We've already seen this color—it's the same as the rose of Figure 9.2. Using the red channel as the base for a selection worked there, but won't here: the sign is light in the red, but so is a ton of other content. But in the B, the sign is a hermit, living in happy isolation, by far the yellowest thing in the image. Before proceeding, I verified this by comparing it to the yellow shopping bag on the right side of the image. The sign was around 95B and the bag more like 55B.

We now know what channel will isolate the sign; the question is how to make it happen. Creating a selection is for those who are certain they know what they want. Making a mask is for those who want room to experiment. I fall into neither category with this image. I'm not sure I want to exclude the sign totally, but neither am I about to spend 15 minutes tweaking a mask. So, I select a middle method: using layer Blending Options, allowing me to exclude the signage altogether while offering some limited flexibility to let it change slightly.

I started in LAB with a duplicate layer, to which I applied Shadow/Highlight at settings of 25% Amount, 55% Tonal Range, and a big 65-pixel Radius, followed by a touch of the Unsharp Mask filter. This got the image about halfway to where I thought it should be.

Putting all this on a separate layer turned out not to be necessary. I was concerned that some of the moves might adversely affect the sign and that I would have to use Blending Options immediately. It didn't happen, so I added an adjustment layer and wrote the kind of curves that we've seen many times before: dropping the quartertone point in the L to make a lighter picture with more contrast in the midtones; steeper A and B to intensify color variation. Also, I moved the B curve slightly away from yellow and toward blue, to compensate for a slight yellowish cast in some of the metallic objects.

Increasing color intensity drove the sign far out of gamut. To restore it, I brought up

Figure 9.10 *The sign was substantially excluded from this correction of Figure 9.9, by isolating it in the B channel.*

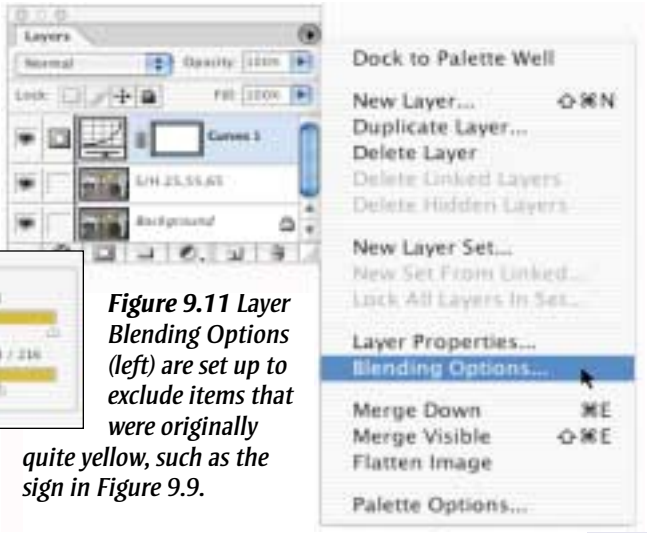


***Figure 9.11** Layer Blending Options (left) are set up to exclude items that were originally quite yellow, such as the sign in Figure 9.9.*

the Blending Options dialog with the top layer still active. By default, the top layer takes precedence, but we can move sliders to exclude certain areas and restore what's underneath; we also have a limited ability to form areas that combine both layers.

Here, the object was to exclude things far to the yellow side of the B channel. The tough part is making the meaning of *far to the yellow side* narrow enough to include only the sign, and not the yellow shopping bag.

After increasing color variation we would normally work with the top layer sliders, because there would be more space between the sign and the bag than there was originally, making it easier to find a point between them. Here, though, the curves had maxed out the sign to the infinitely yellow 127B. The bag had become about 100B, so there was less difference between the two than there was on the bottom layer.

Therefore, I moved the right-hand slider on the underlying layer to the left, until I was sure it was getting most of the sign and none of the bag. Then, feeling that the transition between the sign and the rest of the image was too harsh, I Option–clicked the slider to break it in half. The space between the two halves is a transition zone where Photoshop blends the two layers rather than using one or the other. To the left of the left half it uses the top layer only; to the right of the right half, the bottom layer(s).

Ultimately, Figure 9.10 is a lie. Not because it's lighter than the original; if we had been there, we'd have perceived the scene as lighter than the photograph ourselves. But we would have recognized the sign as being more intense than the bag, since the sign generates its own light and the bag doesn't. On the printed page, allowing a dull bag in the interest of a sign that seems brighter would not be smart. Hence, the lie, and when we lie about an image, we ordinarily need a mask, a selection, or the type of layer blend shown here.

Each Morn a Thousand Roses Brings

As noted in Chapter 1, plant life, along with light-skinned Caucasians, represents an area of disagreement between human beings and cameras. We invariably remember seeing something greener than the camera has recorded. And so, in something like Figure 9.12, we want greener, more variable grass, which is a move away from the spirit of the photograph, not to use the more invidious word found in the preceding paragraph.

There are two problems with treating the greenery the way we did the canyons of Chapter 1. Both pertain to the background.

First, as the greenery occupies the midrange of the L channel, we'd use an S-shaped curve to increase contrast. That would be too bad for the sky, which is in the light part of the L and might blow out. Second, the sky is already slightly negative in the A channel, meaning that, although blue is its dominating hue, it's slightly biased toward green. If we try to steepen the A channel, the sky may become annoyingly cyan.

These two factors suggest doing something to emphasize the changes in the lower half of the image. Not splitting the picture in half

and leaving the top half untouched, mind you, as that would make the bottom half look as though it had been cut out and pasted back in. We want to use a subtle mask for maximum flexibility in editing; Blending Options is too blunt an instrument.

The color-enhancing move itself should clearly be done in LAB, because that's what LAB does best. But where should the mask come from? Remember, there's no law against using a mask derived from an RGB channel while working in LAB. But which one?

You could always check each channel individually, but the goal should be to know the answer in advance. In RGB, the lighter the channel, the more color it contributes. The red has been our best choice in all the flower images, but it won't be here. The grass and trees aren't very red, so they're dark. The other half of the image is slightly lighter, but it isn't red either.

The green channel is even worse. Both halves of the picture are rather light, since they share a green component.

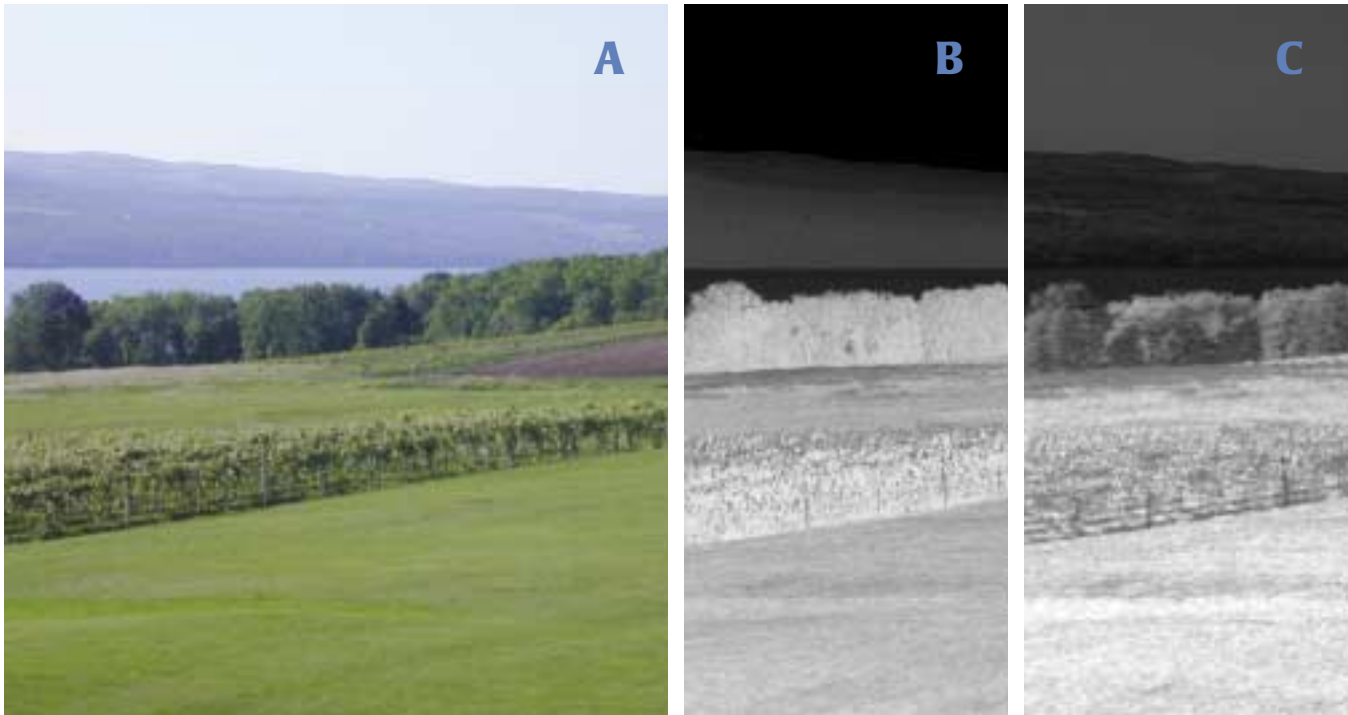
The blue is the one we want. The background is distinctly blue, therefore light. The foreground isn't blue at all; it tends toward yellow, as all natural greens do. Therefore, it's dark, yielding exactly the kind of higher-contrast channel that we're looking for.

Its opponent in the LAB corner is the B. In the A, the foreground is more magenta than green, hence lighter, but the background is basically neither magenta nor green, hence of medium darkness. In the B, the foreground is sharply more yellow than blue and the background sharply more blue than yellow.

Both contenders need work before entering the ring. Masks need to be light to enable and dark to disable changes. The blue channel is the opposite; it's dark in the foreground that we want to change and light in the background that we don't. Therefore, we make a copy of it and choose Image: Adjustments> Invert. Figure 9.12B is the inverted copy.

The B of LAB, on the other hand, is too flat, inasmuch as we never find whites or blacks in AB channels. Therefore, I copied it to a

Figure 9.12 *The difficulty with applying LAB curves to enhance the foreground greens in the original, left, is that they may blow out the delicate blues in the background. The solution is a mask that applies the curve more to the bottom half than to the top. Two likely contenders: an inverted copy of the blue channel of RGB, center, and a copy of the B channel of LAB to which the Auto Levels command has been applied to enhance contrast.*



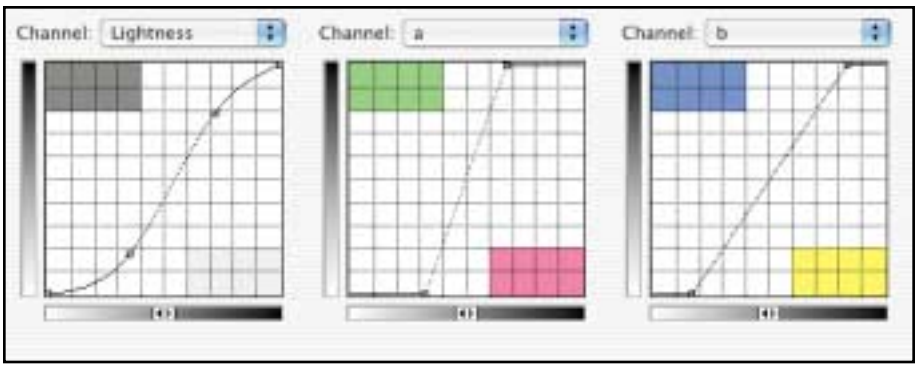


Figure 9.13 *Top left, Figure 9.12A with the curves at left loaded. Top right, same curves, but with the B channel loaded as a layer mask. Bottom left, with the layer mask changed to Figure 9.12C. Bottom right, with the layer mask edited to be almost white in the green areas and black elsewhere.*

separate document, followed by Image: Adjustments>Auto Levels to get Figure 9.12C.

Compare the two masks in the trees that are closest to the lake, and in the row of grapevines at center. In Figure 9.12B, both areas are more selected than the grass is, because originally they were darker. But in Figure 9.12C, they are *less* selected, because they originally weren't as green. That's the better interpretation, in my opinion. We would like the curves to give those grassy areas more of a pop to make them stand out from the darker, more neutral greens.

Having thus decided to use the B as the start of a mask, the experimentation begins by putting a curves adjustment layer on an LAB version of Figure 9.12A. Just to see what's what, we pretend that the background doesn't exist, and aim the curves squarely at the foreground area, without any mask or selection. The result is Figure 9.13A.

Creating, saving, and loading masks can be done with several different command sequences in Photoshop. The most common way is to establish a selection (possibly by loading an existing channel as a selection directly, as explained in the discussion of Figure 7.11) followed by Select: Save Selection. This prompts us to save either as a separate grayscale document, or as an extra, nonprinting (alpha) channel. We can load as a mask any channel from our own document, any open grayscale document of exactly the same size as ours, and any alpha channel of any other same-size open document.

With this picture, I don't need to save anything at all, because I propose to use a layer mask rather than loading a mask as a selection. The reason is that I don't know yet how strong a mask to make, and I want to be able to edit it on the fly.

The layer mask defines a merge between its home layer and the layer(s) beneath it. Where the mask is white, the top layer takes precedence; where black, the bottom layer(s). Where the mask is gray, we see a combination: the lighter the gray, the more it favors the top; darker values favor the bottom layers. All this is quite analogous to how a mask loaded as a selection works.

The layer mask isn't there unless we Layer: Add Layer Mask. An adjustment layer, however, contains a blank layer mask by default. You can see a layer mask icon on the right side of the top layer bar in Figure 9.11. Since the icon has a border, the layer mask is the current target of any move we might make.

Figure 9.13A, since it's made with an adjustment layer, has a layer mask already, but an irrelevant one because it's blank, white, meaning that the top layer always takes precedence.

One of the many ways of loading a layer mask is shown in Figure 9.14. Being sure that the layer mask is highlighted in the Layers palette, Image: Apply Image, choosing the B channel as source.

Doing so produces Figure 9.13B, in which the changes of Figure 9.13A are sharply reduced. They have to be, because an uncorrected A or B channel is very gray. Everything is close to a 50–50 blend of the two layers.

Masks and Blurring

Most masks require some type of mild blurring before being loaded. Otherwise, when the image is corrected, the line between protected and unprotected areas may be too harsh. Blurring is particularly necessary when using the A or B channel, both of which can be fairly noisy, as the base. A Gaussian blur of 3.0 pixels or less is usually sufficient.

In other types of selection, the blurring may not be recognizable as such, but it's there nonetheless. The Select: Color Range command tends to create a smooth transition on its own, as does the layer Blending Options command when the control sliders are split apart. Even when we make "hard" selections with the magic wand or pen tools, it's customary to Select: Feather afterward. In effect, that blurs the edge, creating a zone of partial selection.

There's a slight preference for the top layer in the foreground green area.

If we feel that Figure 9.13B isn't dramatic enough, we can, with the layer mask still active, choose Auto Levels, effectively making Figure 9.12C the layer mask and producing Figure 9.13C. Because the mask has been exaggerated, the correction is more intense than that of Figure 9.13B in the bottom half but less intense in the top half.

Even more radical, I applied an extremely steep curve to a fresh copy of the original B, blowing out nearly all of the grass to white and plugging the entire background to black. The only areas remaining as shades of gray were the trees, the grapevine, and limited amounts of grass. Loading the result as a layer mask produced Figure 9.13D, in which the correction is applied almost fully to the bottom half and not at all to the top.

These are only four of an infinite number of possibilities, some of which involve the use of RGB. But LAB has major advantages both for the color variation in the greenery and, if a mask is desired, for that. The key is to prevent the selection from affecting the trees and grapevines as much as the grass. An RGB mask would not do so as subtly.

But Where Is the Rose of Yesterday?

We now turn to a more complicated, and sadder, example. The view from Hong Kong island across the harbor to Kowloon used to be one of the most dramatic and romantic in the world. No more. Rapid development in China has led to air pollution that has gotten completely out of hand in the last few years.

If you think trying to make a picture of this sorry scene look more attractive is hard, you should try breathing that air. But altering photographs in such ways is standard practice in the advertising industry, and nowadays it may be hard to find a day much better than this one to start with. As for finding a clear picture from a few years back, forget it. Hong Kong has been adding skyscrapers at such a frenetic pace that a shot from even five years ago looks no more like today's reality than the skyline of Des Moines looks like that of New York. No, we work with what we have.

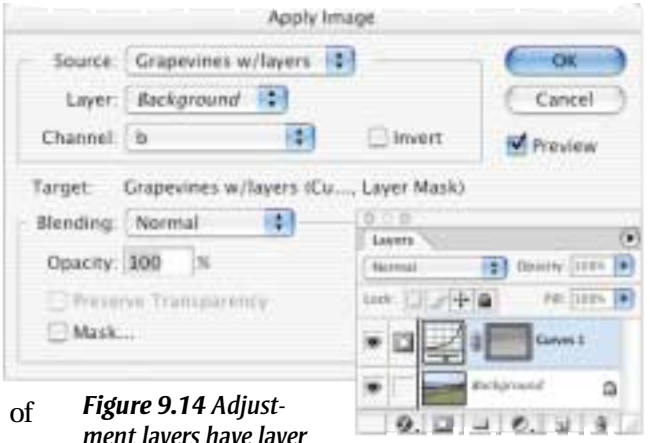


***Figure 9.14** Adjustment layers have layer masks by default. Above, the Apply Image command puts a copy of the B channel into the layer mask. Inset, the layer mask icon reflects the new contents.*

We've seen, back in Figure 3.1, how LAB curves excel at breaking through haze. The problem is the reverse of Figure 9.12A, where we wished to enhance the foreground while avoiding excessive damage to the background. In Figure 9.15A, we need to increase *background* contrast so drastically that the foreground is in mortal danger. The solution remains the same: a selection or mask to partially protect the foreground while we blast away at the background.

The curves shouldn't be difficult. They'll be very steep, and may have to be repeated because the original is so flat. The only irregularity is, since we won't be able to eliminate the haze altogether, I think we should force it to be more blue. That will make the water more attractive, and possibly fool people into thinking they're seeing sky, not smoke.

Developing a proper masking procedure requires us first to figure out what is likely to get hurt by these curves, and how we can protect it. The far bank is so enveloped with smog that it's basically entirely gray. Whites and blacks are nonexistent. Therefore, we

can put our corrections on a new layer or adjustment layer, and use Blending Options to exclude things that are either very light or very dark on the underlying layer.

That's only half the battle, because certain foreground objects, particularly the large copper-colored building, won't fall in the exclusion zone. The AB curves for the background need to be very steep indeed, to try to take advantage of whatever limited color variation may be found through all the smog. Plus, I intend to force the B curve toward blue. If that foreground building gets a taste of those curves, it may turn either bright orange or bright blue, or possibly both at once! And at least one other foreground building in that darkness range starts out on the dangerous yellow side.

It sounds like another job for the B, since what we're after involves yellowness, not darkness. Furthermore, if the mask suppresses changes to things that are more yellow than blue, it permits them in areas that are more blue than yellow. That's a bonus, because it will allow both the water and the smog to get bluer.

Therefore, I followed the same procedure as in Figure 9.13C. I created a curves adjustment layer, loaded the B channel as a layer mask, blurred it, and applied Auto Levels to increase its range. This time, though, I had to invert the B to emphasize bluer parts of the image and exclude yellower ones, the opposite of what was needed in Figure 9.13C. And, for reasons I'll explain shortly, I added the Blending Options shown in Figure 9.16.

The biggest problem in masking is that in separating out parts of the image for special attention, we can separate them so much that the viewer will perceive two different pictures. That's why the mask needs soft edges, and that's why we split the sliders in the Blending Options dialog. The mask alone wasn't sufficient to protect the yellower areas from changing, so I added a further restriction in the B channel. The Blending Options applied to the L, meanwhile, partially exclude areas that were originally very light or dark,

Review and Exercises

- ✓What is the difference between a selection and a mask?
- ✓In the images of flowers that start this chapter, why was the red channel always chosen as the base for an RGB mask? Under what circumstances would you choose the green or the blue?
- ✓Why is it often necessary to apply adjustments such as Auto Levels to copies of the A or B channels before using them as masks?
- ✓In the layer Blending Options dialog, how does one split a slider in two? What is the purpose of doing so?
- ✓For each of the following images, state which RGB and which LAB channel would probably make the best start for a mask or selection:

  1. The yellow canyon wall of Figure 1.2
  2. The woman's red hat in Figure 3.13
  3. The hog and shoats of Figure 6.2
  4. The bison of Figure 7.9

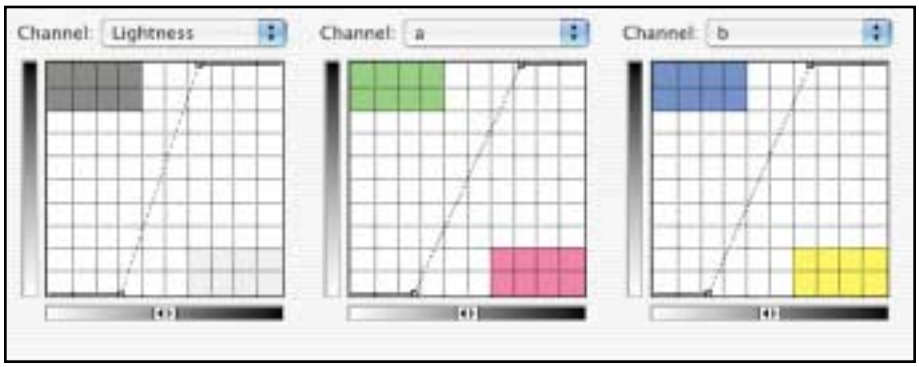
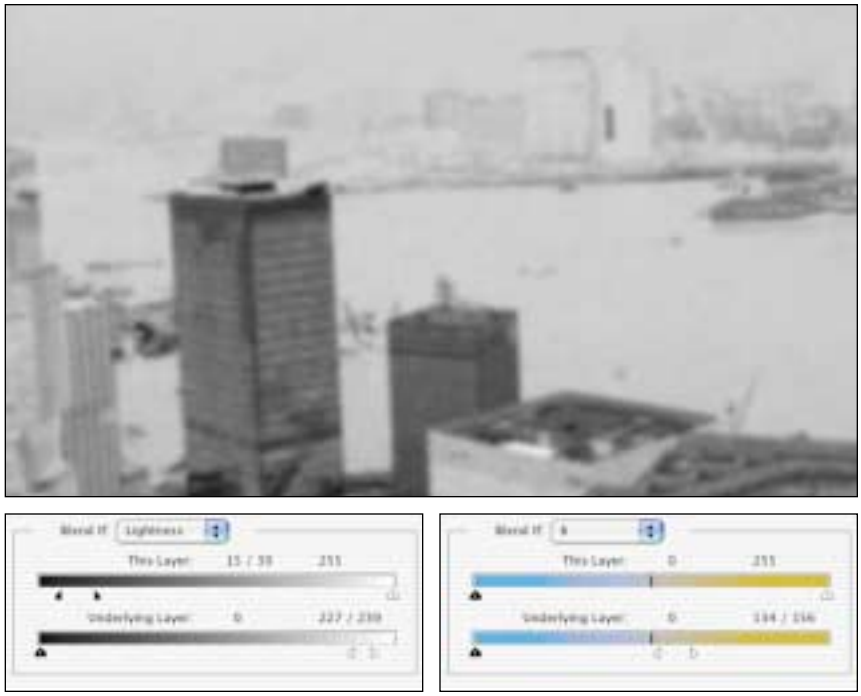


Figure 9.16 *The curves, left, were applied to Figure 9.15A through a layer mask that was based on an inverted copy of the B channel (below). Blending options (bottom) further restricted the impact to smoky areas.*

since our target area is a dismal gray.

Ordinarily, we work with sliders on the layer that has the most range. The curves have smashed the deepest shadows into total blackness on the top layer. We want to exclude not only those shadows, but also somewhat lighter ones. So much contrast has been added by blowing out the highlights and plugging the shadows that what's left over occupies a very long range. It's easier to experiment with the sliders, as we need not be as precise. We therefore use the This Layer line.



The same doesn't apply to the highlight sliders. The curves have wiped out not just anything that was originally lighter than the smog, but also some of the critical areas. So, there's no choice: we must use the Underlying Layer line, because some of what we're trying to target doesn't even exist on the top layer.

The colors were now fine, but I still wanted to increase contrast in the background. So, after flattening the image, I created a new adjustment layer and, without a layer mask, essentially repeated the previous move, but in the L channel only: a very steep curve, limited by Blending Options that excluded very light and very dark areas of the original.

After this complicated series of moves, let's end with something just as complicated—unless you know LAB, which not only seems to make selections appear out of thin air, but sometimes can select the thin air itself.

Figure 9.15 *(opposite) The original, top, is nastily gray because of air pollution. Bottom, an attempt to create happier colors and lessen the impact of the background smoke. Inserting this added blueness required that the foreground buildings be excluded.*

Lighting Through Rose-Colored Glasses

Scenes with two or more competing light sources often force selections. Figure 9.17 was professionally shot for an advertisement,

Figure 9.17 *Due to different types of lighting, the right side of this image has a blue cast, but the left side is correctly balanced. Eliminating the undesirable cast in such images normally requires a mask.*

but the photographer could not compensate for tungsten lighting on one side of the image and daylight-adjusted on the other. Hence, the image is neutrally correct on its left side but has a blue cast on the right. Naturally, the client wants the cast removed.

If there were one cast in the light half of the image and a different one in the dark half, as was the case back in the office scene of Figure 7.11A, then we might be able to fix it with a single set of RGB or CMYK curves. But one cast on the right and another on the left needs a selection no matter what colorspace we work in.

Since this file came to me in CMYK, that's where we'll keep it. The procedure would be exactly the same if it had arrived in RGB. Since the only objective is to remove the cast, there's no need for LAB curves—but we still have to figure out how to, how shall I put it, select the *air* on the right side of the file.

If you insist upon making this mask in some other colorspace, you'll be in for a long day, not just in painstakingly excluding every part that isn't blue, but in establishing a believable transition between where the cast ends and the normally lit area begins. Realize that the beginnings of the mask already are stirring, however tenuously, in a B channel that doesn't yet exist, and the whole exercise can take less than a minute.

The first step is to get a copy of this hypothetical B into our CMYK file. So, we Image: Duplicate, then Mode: Lab Color. As the B is the third channel, the keyboard shortcut Command-Option–3 loads it as a selection directly into the LAB file.

Now, since the selection *is* the B, we Select: Save Selection, indicating that we want to save a separate channel for future amusement. Photoshop asks us where we would like to put it: the current document, as a separate grayscale file, or into any other open document that's the same size as the current one. That last option is the one we want: the

The Bottom Line

When a mask or selection is needed, the A and/or B channels are often surprisingly good starts. When properly handled, they produce masks that become less effective as the color becomes less pronounced, as opposed to RGB, where the mask is lessened as the color gets darker.

Before loading a mask based on the A or B, it's usually necessary to increase contrast and to blur it.

Such masks can also be used even if no other work is being done in LAB. There is no law against making a copy of an image, converting it to LAB, and transferring a copy of one of the channels to the original file.

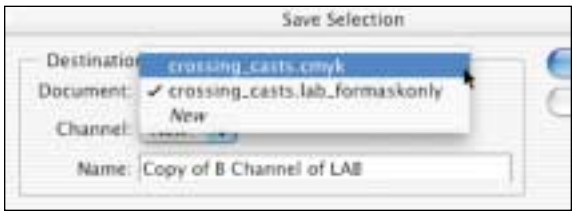


Figure 9.18 *Active selections can be saved for future use as masks either as separate documents or as alpha channels in any same-size open file.*

original CMYK file is the same size as the LAB copy, so we can drop this B into the CMYK file as a nonprinting fifth channel, as shown in Figure 9.18.

A and B channels are always rather gray, and this one is exceptionally so. A value of 50% gray represents neutrality, and this is basically a neutral picture. The slight added blueness on the right side is certainly there, but it's hard to see. This new channel's contrast has to be enhanced before the mask is usable.

Command–5 opens the copy of the B that is now the fifth channel of the CMYK document. The desired increase in contrast is too huge to be made in one step. It could be accomplished in several different ways, but, after the usual slight blur, I started by applying Auto Levels, getting to Figure 9.19A. Remember, since this is a nonprinting or alpha channel, whatever we do to it does not affect final reproduction—yet.

Although the added blueness on the right is now visible as extra darkness in the mask channel, we still have to go further. The left side should be a pure white, which it isn't in Figure 9.19A. The right side should be pure black where it's bluest. In between, there needs to be a transition. All this can be taken care of by a very steep curve.

Also, masks need to be light in the areas where change is to be allowed and dark where the file is locked. Figure 9.19A is the opposite. Upon loading a mask, Photoshop gives us an Invert check box as an option. I find that it makes me crazy, so I always avoid having to remember to use it by applying Image: Adjustments>Invert to recalcitrant mask channels. That, plus the curve and a slight blur, produces Figure 9.19B.

We now return to the original CMYK, and Select: Load Selection. The modified B

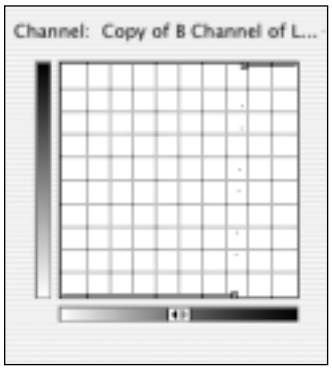


Figure 9.19 *Contrast usually must be enhanced before using a copy of the A or B as a mask. The original B of Figure 9.18 is too gray to show here. Above, after it has been blurred and Auto Levels applied. Below, contrast has been added with the curve at left, and the channel has been inverted to create the final mask.*

Figure 9.20 *The final image, where the cast has been reduced by loading Figure 9.19B as a selection and cutting saturation with the Hue/Saturation command.*

channel appears as an option, and we load it. At this point, we have the seemingly impossible selection of the ambient light. With that accomplished, there are at least half a dozen ways to eliminate the cast. I chose Image: Adjustments>Hue/Saturation, reducing the Master Saturation control by 50 points and producing Figure 9.20.

The Outlook Is Rosy

The removal of the cast in Figure 9.17 took longer to explain than it did to execute, yet even very experienced retouchers often take much longer to achieve an inferior result. I know this because I've used this particular picture as an exercise in advanced classes.

The ability to visualize what the channels must look like is the key to making selections of any complexity. The A and B look so foreign that many people make the mistake of ignoring them. As we've seen in this chapter, they often can provide better selections than are otherwise available. We started with objects that would be easy to select in any colorspace, but as we progressed it became harder and harder to make them without help from the A or B.

One final advantage: knowing when to use the A or B for masks is the same skill as knowing when to use them in some rather startling channel blends that are described in the final two chapters of this book. Get through that, and remember the flowers of this chapter, and perhaps your life will still not be a bed of roses. But it would be fair to say that, in image manipulation as in skillful masking, you will have found a very pronounced edge.